

CLAIMS

What is claimed is:

1. A molding compound comprising:
at least one unsaturated oligomer resin; and
at least one unsaturated monomer; wherein said compound is non-reversibly crosslinked within a predetermined amount, and wherein the viscosity of said compound is increased.
2. A method of making a thickened compound comprising:
preparing a composition consisting essentially of at least one unsaturated oligomer resin, and at least one unsaturated monomer; and
non-reversibly crosslinking said composition a predetermined amount, wherein the viscosity of said composition is increased.
3. A method of non-reversibly crosslinking a compound comprising:
preparing a composition comprising an amount of unsaturated oligomer resin, an amount of unsaturated monomer, and an amount of a free radical initiator; and
irradiating the composition with high-energy electrons, wherein a plurality of non-reversible crosslinks are formed, and wherein formation of said crosslinks is dependent upon an absorbed dose and a dose rate of said high-energy electrons.
4. A method of preparing a compound which is suitable for use in compression molding operations comprising:
preparing a thermoset mixture consisting essentially of an unsaturated oligomer resin, an unsaturated monomer, and a free radical initiator;
forming a partially crosslinked mixture by selectively irradiating a portion of said thermoset mixture to a desired increased viscosity;
cutting a portion from said partially crosslinked mixture to a desired mass;
placing said mass into a mold; and
heating said mold to a temperature sufficient to convert said partially crosslinked mixture to a cured and a molded product.

5. The compound of claim 1 further comprising materials selected from the group consisting of free radical initiators,
polymerization inhibitors, wetting agents, antifoam agents, fillers, fibrous reinforcing materials, pigments, and mold release agents.
6. The compound of claim 1, wherein said unsaturated oligomer resin in an unsaturated polyester resin.
7. The compound of claim 1, wherein said unsaturated monomer is styrene.
8. The compound of claim 1, wherein compound further comprises is an organic peroxide.
9. The compound of claim 1, wherein said compound is non-reversibly crosslinked by selective irradiation from an electron beam of high-energy electrons.
10. The method of claim 2, wherein said composition further comprises materials selected from the group consisting of free radical initiators, polymerization inhibitors, wetting agents, antifoam agents, fillers, fibrous reinforcing materials, pigments, and mold release agents.
11. The method of claim 2, wherein said unsaturated oligomer resin in an unsaturated polyester resin.
12. The method of claim 2, wherein said unsaturated monomer is styrene.
13. The method of claim 2, wherein said free radical initiator is an organic peroxide.
14. The method of claim 2, wherein said composition is non-reversibly crosslinked by selective irradiation from an electron beam of high-energy electrons, with the degree of crosslinking controlled by the electron energy, radiation dose and dose rate.

15. The compound of claim 1, wherein the amount of crosslinking forms a gel material, having a viscosity to allow it to be handled for a subsequent molding process.
16. The compound of claim 1, further comprising at least one reinforcing material, wherein the amount of crosslinking inhibits flow of said reinforcing materials when the compound is subjected to elevated temperatures.
17. A molded article comprising a mixture of at least one unsaturated oligomer resin and at least one unsaturated monomer, wherein crosslinking of the monomer is provided by irradiation of the mixture to cause the at least one oligomer to become a free radical crosslinking the monomer.
18. A process to form a cured article from a polymeric compound,
providing a polymeric compound consisting essentially of at least one unsaturated oligomer resin and at least one unsaturated monomer,
irradiating the compound with high energy electrons having a predetermined energy for an amount of time to cause complete crosslinking in the compound.